International Bureau





PCT

# (43) International Publication Date 3 August 2006 (03.08.2006)

(51) International Patent Classification: *A61K 39/395* (2006.01) *C07K 16/18* (2006.01)

(21) International Application Number:

PCT/US2006/004741

**(22) International Filing Date:** 27 January 2006 (27.01.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/648,639 28 January 2005 (28.01.2005) US

(71) Applicant (for all designated States except US): WYETH [US/US]; Five Giralda Farms, Madison, New Jersey 07940 (US).

- (72) Inventors; and
- (75) Inventors/Applicants (for US only): LUISI, Donna [US/US]; 75 Boston Street, North Andover, Massachusetts 01845 (US). WARNE, Nicholas, W. [US/US]; 27 Farrwood Drive, Andover, Massachusetts 01810 (US). KANTOR, Angela [US/US]; 118 South Road, Pepperell, Massachusetts 01463 (US).
- (74) Agents: MILASINCIC, Debra, J. et al.; LAHIVE & COCKFIELD, LLP, 28 State Street, Boston, Massachusetts 02109 (US).

(10) International Publication Number  $WO\ 2006/081587\ A3$ 

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 12 October 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: STABILIZED LIQUID POLYPEPTIDE FORMULATIONS

(57) Abstract: The present invention provides formulations for maintaining the stability of polypeptides, in particular, therapeutic antigen-binding polypeptides such as antibodies and the like, for example, anti- $A\beta$  antibodies. The formulations generally include an antioxidant in a sufficient amount as to inhibit by-product formation, for example, the formation of high molecular weight polypeptide aggregates, low molecular weight polypeptide degradation fragments, and mixtures thereof. The formulations of the invention optionally comprise a tonicity agent, such as mannitol, and a buffering agent or amino acid such as histidine, and thus, the formulations are suitable for several different routes of administration.



### INTERNATIONAL SEARCH REPORT

International application No PCT/US2006/004741

A. CLASSIFICATION OF SUBJECT MATTER INV. A61K39/395 C07K16/18										
According to International Patent Classification (IPC) or to both national classification and IPC										
	SEARCHED									
Minimum documentation searched (classification system followed by classification symbols) A61K C07K										
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched										
Electronic d	ata base consulted during the international search (name of data ba	se and, where practical, search terms used)								
EPO-In	ternal, BIOSIS, EMBASE, WPI Data, PA	AJ								
C. DOCUMENTS CONSIDERED TO BE RELEVANT										
Category*	Citation of document, with indication, where appropriate, of the rel	evant passages	Relevant to claim No.							
X	US 2004/197324 A1 (LIU JUN ET AL) 7 October 2004 (2004-10-07) paragraph [0012] - paragraph [001 paragraph [0036] paragraph [0050] paragraph [0203]		1-99							
X Furti	her documents are listed in the continuation of Box C.	X See patent family annex.								
"A" docume consid "E" earlier of filing d "L" docume which citation "O" docume other r	ent which may throw doubts on priority claim(s) or is cited to establish the publication date of another n or other special reason (as specified) ent referring to an oral disclosure, use, exhibition or	<ul> <li>*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</li> <li>*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</li> <li>*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</li> <li>*&amp;* document member of the same patent family</li> </ul>								
Date of the	actual completion of the international search	Date of mailing of the international search	report							
1	August 2006	11/08/2006								
Name and n	nailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer  Irion, A								

## INTERNATIONAL SEARCH REPORT

International application No PCT/US2006/004741

C(Continua	tion). DOCUMENTS CONSIDERED TO BE RELEVANT	PC1/U52006/UU4/41
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 03/105894 A (MEDIMMUNE, INC; OLIVER, CYNTHIA, N; SHANE, ERICA; ISSAACS, BENJAMIN, S) 24 December 2003 (2003-12-24) page 6, line 28 - line 29 page 4, line 31 - page 5, line 3 page 21, line 15 - line 23 page 8, line 3 - line 21 page 20, line 16 - line 32 page 7, line 16 - line 32 page 7, line 24 - line 30 page 29, line 27 - page 30, line 29	1-99
X	WO 2004/055164 A (ABGENIX INC [US]; CHEN BEI [US]; ZAPATA GERARDO [US]; MULKERRIN MICHAE) 1 July 2004 (2004-07-01) paragraph [0008] - paragraph [0013] paragraph [0018] - paragraph [0019] paragraph [0038] - paragraph [0040] paragraph [0043] paragraph [0041] page 10; table 1a page 19; table 4	1-99
X	WO 03/039485 A (PROTEIN DESIGN LABS; KAISHEVA, ELIZABET, A; GUPTA, SUPRIYA; DUVUR, SHA) 15 May 2003 (2003-05-15) abstract page 11, line 8 - page 12, line 18 page 21, line 1 - line 10	1–99
X	WO 98/56418 A (GENENTECH, INC) 17 December 1998 (1998–12–17) page 22, line 9 – page 23, line 15	1–99
X	US 5 358 708 A (PATEL ET AL) 25 October 1994 (1994-10-25) column 2, line 19 - line 24 column 3, line 59 - column 5, line 31 claims 1-12	1-99
X	WO 02/096457 A (NOVARTIS AG; NOVARTIS-ERFINDUNGEN VERWALTUNGSGESELLSCHAFT M.B.H; GENEN) 5 December 2002 (2002-12-05) page 4, line 13 - line 24 page 8, paragraph 5 - page 9, paragraph 1 page 11, paragraph 3	1-99
А	US 2003/165496 A1 (BASI GURIQ ET AL) 4 September 2003 (2003-09-04) the whole document	1–99

### INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2006/004741

	atent document d in search report		Publication date		Patent family member(s)		Publication date
US	2004197324	A1	07-10-2004	US	2005158303	A1	21-07-2005
WO	03105894	Α	24-12-2003	AU CA EP JP	2003245515 2489632 1531862 2006501168	A1 A1	31-12-2003 24-12-2003 25-05-2005 12-01-2006
WO	2004055164	A	01-07-2004	AU	2003293543	A1	09-07-2004
WO	03039485	A	15-05-2003	CA CN EP JP	2466034 1612689 1441589 2005508981	A A2	15-05-2003 04-05-2005 04-08-2004 07-04-2005
WO	9856418	A	17-12-1998	AT AU CA DE DE DK EP ES JP	230277 740284 8255998 2292730 69810481 69810481 999853 0999853 2190087 2002504907	B2 A A1 D1 T2 T3 A1	15-01-2003 01-11-2001 30-12-1998 17-12-1998 06-02-2003 25-09-2003 22-04-2003 17-05-2000 16-07-2003 12-02-2002
US	5358708	Α	25-10-1994	NONE			
WO	02096457	A	05-12-2002	BR CA CN EP JP US	0209777 2448345 1537015 1397159 2004532262 2006127395 2004170623	A1 A A2 T A1	01-06-2004 05-12-2002 13-10-2004 17-03-2004 21-10-2004 15-06-2006 02-09-2004
115	2003165496	A1	04-09-2003	US	2004087777	A1	06-05-2004